



W. M. H. P.



# *The WDEQ Permitting Process*

*Regulatory Framework (Underground & Surface)*

*Types of WDEQ Licenses & Permits*

*WDEQ License & Permit Contents & Processing*

PRI - Smith Ranch,  
Wellfield 4 Pilot Holes,  
12/98, Quarterly Inspection.



# *Regulatory Framework (Underground)*

## *Federal*

### *EPA - Safe Drinking Water Act*

- ◆ Underground Injection Control Program
- ◆ Code of Federal Regulations
- ◆ EPA Delegation of Primacy to WDEQ

### *NRC - Atomic Energy Act*

- ◆ NUREG 1569 Guidance Document

## *State*

### *WDEQ*

- ◆ Wyoming Environmental Quality Act (WEQA)
- ◆ Associated NonCoal Rules
- ◆ WQD Memorandum of Understanding with LQD
- ◆ Policies & Guidance Documents

# *Regulatory Framework (Underground)*

*Federal  
(EPA)*

## *EPA - Safe Drinking Water Act (SDWA, 1974)*

1974 - Underground Injection Control (UIC) Program established as part of SDWA.

1980 - 1<sup>st</sup> UIC Regulations

Class III wells - wells associated with solution mining.

1983 - EPA Delegation of Primacy to WDEQ.

# *Regulatory Framework (Underground)*

*Federal  
(NRC)*

## *NRC - Atomic Energy Act (1954)*

- ◆ NRC has a process similar to EPA ‘primacy’, through which a State is deemed an ‘Agreement State’. However, Wyoming has never sought to be an Agreement State for a variety of technical, regulatory, and monetary reasons.
- ◆ Prior to 2000, NRC exercised jurisdiction over surface activities only (e.g., ore processing through ion exchange). However, in 2000, NRC decided that NRC jurisdiction extends to the subsurface activities in the wellfields. (SECY-99-0013).
- ◆ In 2003, to help reduce or avoid dual regulation from the 2000 decision, NRC approved work on MOUs with the non-Agreement States - Wyoming, Nebraska, & New Mexico (SECY-03-0186). However, NRC expressed concern that, compared to NUREG 1569, Wyoming approach was too lenient because only required return to ‘class of use’ not baseline.
- ◆ In 2006, NRC has apparently decided to proceed with rule-making on restoration standards, but continue work on the MOUs (COMJSM-06-0001).

# *Regulatory Framework (Underground)*

*State  
(WDEQ)*

## *Wyoming Environmental Quality Act*

- ◆ Created in 1973, specific in situ mining provisions (similar to current provisions) added in 1979.
- ◆ Associated WDEQ rules promulgated in 1980. Few changes until 2005.
- ◆ LQD Guidelines 4, 6, & 8 also developed in 1980s. Periodically updated.

## *WQD/LQD Memorandum of Agreement*

- ◆ Developed in 1996 to identify the “respective responsibilities of the divisions regarding the permitting and enforcement actions relation to mining operations.”
- ◆ LQD responsible for in situ mining permits.
- ◆ Groundwater classification responsibilities *remain with WQD* for consistency among all users.

# *Regulatory Framework (Surface)*

*Soils & Vegetation* - WDEQ

*Archeology & Paleontology* - WDEQ & SHPO

*Wildlife* - WDEQ, USFWS, & WGF

*Surface Water & Erosion Control* - WDEQ, SEO

*Ground Water* - NRC, EPA, WDEQ, SEO

*Ore Processing* - NRC

*Waste Disposal* - NRC & WDEQ

PRI - Highlands,  
Sage Hens in H Wellfield,  
7/00, Annual Inspection.



# *The WDEQ Permitting Process*

→ *Regulatory Framework (Underground & Surface)*

→ *Types of WDEQ Licenses & Permits*

*WDEQ License & Permit Contents & Processing*



PRI - Highlands, Header Houses in H Wellfield,  
6/99, Quarterly Inspection.



# *Types of WDEQ Licenses & Permits*

## *'De Minimus'*

Letters of Authorization (LOA). Example: recreational gold dredging.

## *Exploration*

Drilling Notification (DN). Example: *uranium exploration*.

License to Explore by Dozing (LE). Example: Dimension stone.

Research & Development License (RD).

## *Small-Scale*

Ten-Acre Exemption (ET). Example: Sand & gravel pit for specific job.

Small Mine Permit. Example: Sand & gravel pit for multiple jobs.

## *Large-Scale*

Regular Mine Permit. Example: *in situ uranium mine*.

## *Operator*

License to Operate - may be more than one licensee per permit.

# *Types of WDEQ Licenses & Permits*

Forms available on-line:

*<http://deq.state.wy.us/lqd/noncoalpermitting.asp>*

But cannot be submitted on-line (yet).

Guidelines, rules, and  
statutes also available  
on-line.



# *Types of WDEQ Licenses & Permits*

## *Contact information:*

### **District Offices**

Cheyenne - Steve Ingle

(307) 777-7756, [single@state.wy.us](mailto:single@state.wy.us)

Lander - Mark Moxley

(307) 332-3047, [mmoxle@state.wy.us](mailto:mmoxle@state.wy.us)

Sheridan - Mark Taylor

(307) 673-9337, [mtaylo@state.wy.us](mailto:mtaylo@state.wy.us)

### **Technical Support Group**

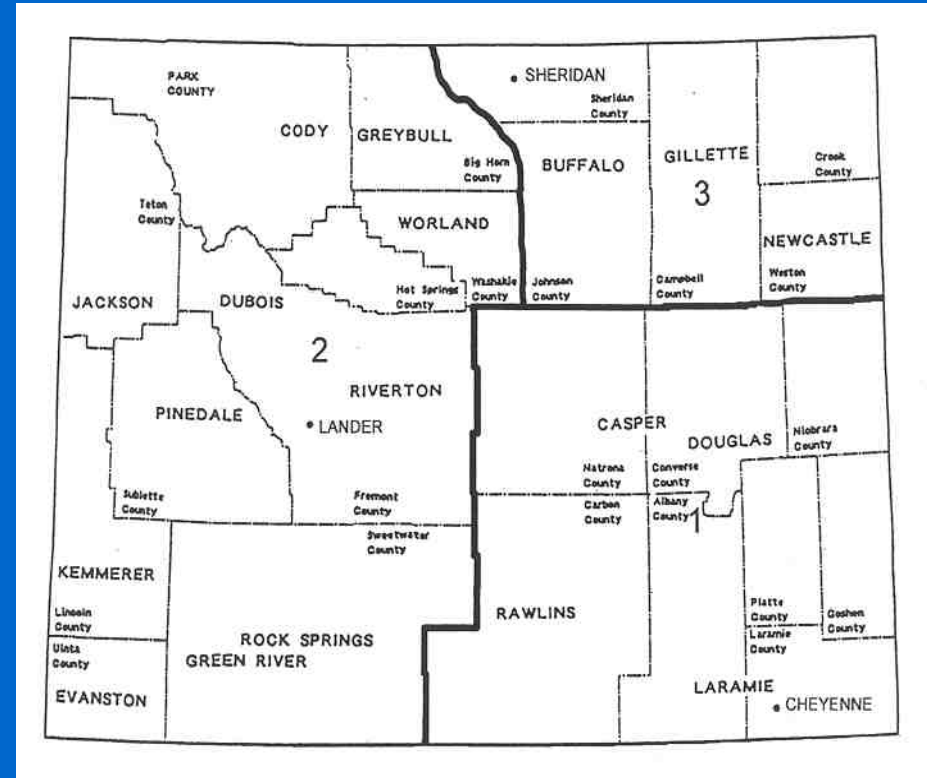
Cheyenne - Roberta Hoy

(307) 777-7756, [rhoy@state.wy.us](mailto:rhoy@state.wy.us)

### **Reclamation Bond Filing**

Cheyenne - Deanna Hill

(307) 777-7756, [dhill@state.wy.us](mailto:dhill@state.wy.us)



# *The WDEQ Permitting Process*

- *Regulatory Framework (Underground & Surface)*
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PRI - Smith Ranch,  
Drilling activity in Wellfield 3,  
12/98, Quarterly Inspection.





# *WDEQ License & Permit Contents*

## *Drilling Notification*

*Initial Licensing*

*Operational Reporting*

*Confidentiality*

## *Regular Mine Permit*

*Initial Permitting*

*Wellfield Packages*

*Operational Reporting*

*Restoration Packages*

*Bond Release Packages*



CCUCG, Purging well  
prior to sampling, 3/99,  
Monthly Inspection

# *Drilling Notification Requirements*

## *Initial Licensing - NonCoal Rules Chapter 8*

- ✓ Permit Form - Form 9DN  
(basic information, reclamation bond calculation, & signature)
- ✓ Reclamation Performance Bond - Form 2OTH1 or 2SF1  
(specific form depends on whether sites on public or private land)

## *Operational Reporting*

- ✓ Can be 'rolled over' provided locations & bonds OK.
- ✓ Abandonment Report

## *Confidentiality*

- ✓ Existence of a DN is not confidential, but contents are.

# *Regular Mine Permit Requirements*

## *Initial Permitting*

### *Adjudication File* (Guideline 6 for permit organization)

#### ✓ Permit Form

(Form 1-UIC - basic information, references, signature, & permit conditions)

#### ✓ Surface & Mineral Ownership & Permission

(Appendices A&B, Form 8)

#### ✓ Location

(Appendix E Map)

#### ✓ Proof of Insurance

#### ✓ Reclamation Performance Bond

(Form 2OTH1 or 2SF1)



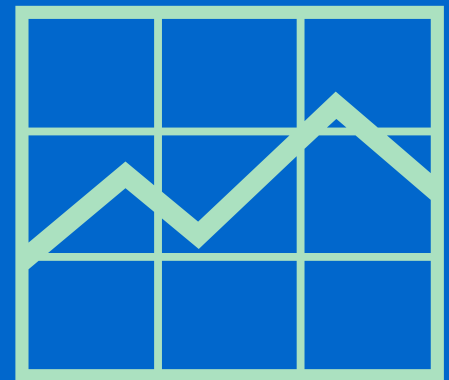
# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

*Baseline (1 page to 1 volume each - Appendices D1-D11)*

- ✓ Land Use (present & historic)
- ✓ Archeology & Paleontology
- ✓ Climatology
- ✓ Topography, Geology, & Overburden
- ✓ Hydrology & Water Rights - *Guidelines 4 & 8*
- ✓ Soils
- ✓ Vegetation
- ✓ Wildlife
- ✓ Wetlands
- ✓ Radiological Survey

*Come in and talk  
to us before  
you collect it!*





# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

### *Mine Plan*

- ✓ Mining Sequence

  - Can be revised

  - Must be tied to Restoration Sequence

- ✓ Mining Fluids (lixiviant)

  - Effective in mining & restoration in WY to date - carbonated water

  - Not effective - sulfuric acid, ammonia

- ✓ Wellfield Balance (*key to efficient mining*)

  - Bleed Rate (1%-5%)

  - Problem Areas (e.g., leaky overlying aquitard)

# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

### *Mine Plan (cont'd)*

- ✓ Water Balance

Plant capacity for production *AND* contemporaneous restoration

- ✓ Waste Disposal

Deep injection, evaporation, discharge (if meet water quality criteria)

May become *problematic* as disposal sites close

# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

### *Reclamation Plan*

- ✓ Well abandonment
- ✓ Facilities demolition (some debris to licensed disposal facility)
- ✓ Surface reclamation (contouring, seeding) & monitoring
- ✓ Ground water restoration & monitoring (w/ time frame)
- ✓ Bond estimate

Details & Cost to State

Cogema - Christensen Ranch, 6/00,  
Quarterly Inspection, Pond Reclamation



# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

### *Review Process - Components*

- ✓ Assignment of TFN (Temporary Filing Number)
- ✓ Completeness Review
- ✓ Technical Review
- ✓ Public Notice (including aquifer exemption & Class V)
- ✓ Appeal Process
- ✓ Permit Approval





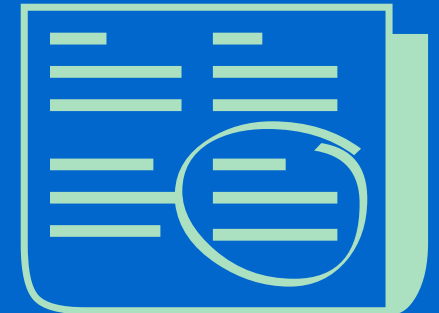
# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

### *Review Process -*

#### *EPA Aquifer Exemption & WQD Class of Use*

- ✓ Need for & size of depend on baseline water quality - exemption area needs to be representative of ore distribution, reflective of mining technology, and protective of ground water resources. May vary from region to region.
- ✓ Applicable exemption criteria in Wyoming is usually “commercially producible”.
- ✓ Township, Range, ¼ ¼ Section, Lot & Block, or Metes & Bounds - something definitive.
- ✓ May be difficult to change.
- ✓ Watch for existing uses.



# *Regular Mine Permit Requirements*

## *Initial Permitting Requirements (cont'd)*

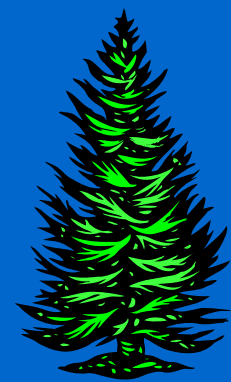
### *Review Process - How long does it take?*

#### *Knowns*

- ✓ Statutory Time Frames

#### *Unknowns*

- ✓ Quality of Submittal
- ✓ Quickness of Operator Response
- ✓ Workload
- ✓ Protests



# *Regular Mine Permit Requirements*

## *Wellfield Packages*

### Well Locations

- ✓ Production/Injection Well Patterns
- ✓ Monitor Well Ring
- ✓ Production Zone Monitor Wells
- ✓ Over and Underlying Monitor Wells

### Aquifer Testing

- ✓ Hydraulic Parameters of Production Zone
- ✓ Continuity of Over and Underlying Confining Units

### Water Quality Sampling

- ✓ Baseline / Class of Use (WQD)/ Update Aquifer Exemption
- ✓ Based on Average in Production Zone, Individual in Ring

### Calculation of Upper Control Limits

# *Regular Mine Permit Requirements*

## *Wellfield Packages (cont'd)*

Other facilities that could impact ground water flow and, therefore, production and injection. Many such facilities are associated with previous mining activities, such as:

- ✓ uranium mill tailings disposal areas;
- ✓ underground mines, and
- ✓ open pit reservoirs...



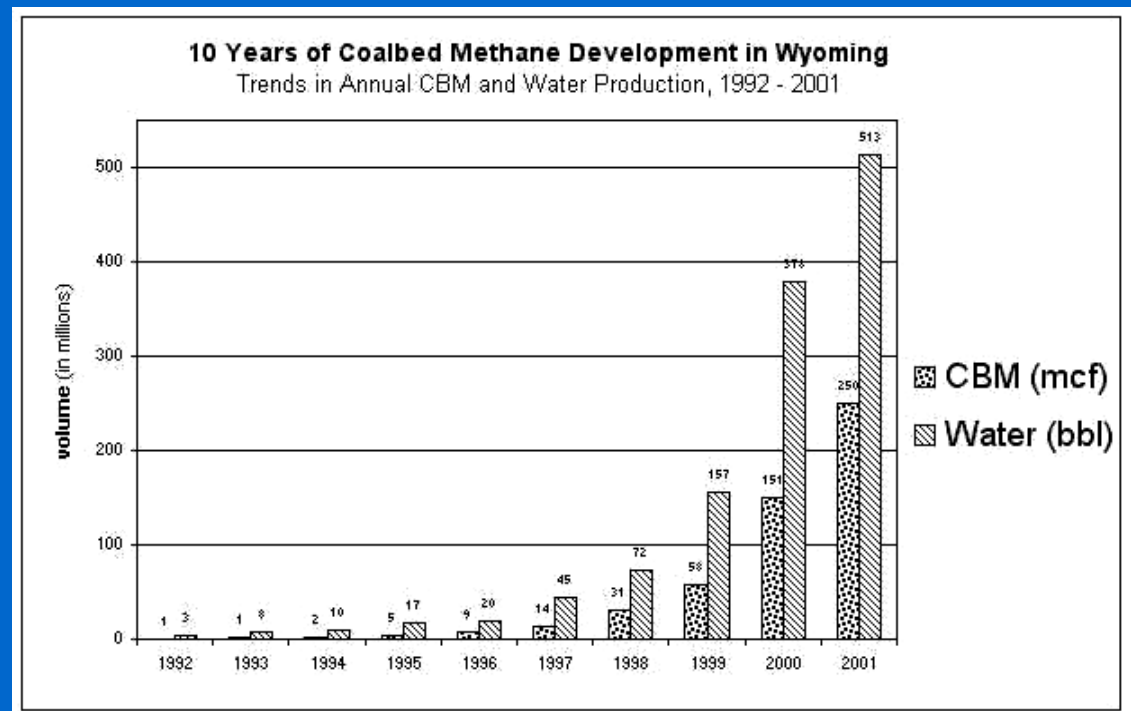
Exxon Highlands, 1990,  
Aerial photograph of Highlands Reservoir,  
PRI facilities on right

# *Regular Mine Permit Requirements*

## *Wellfield Packages (cont'd)*

... and new facilities that are being built (e.g. water withdrawal wells & pipelines for coal bed methane production & transmission).

Note: 1 barrel of water = 42 gallons;  
500,000,000 barrels of water =  
21,000,000,000 gallons of water.



# *Regular Mine Permit Requirements*

## *Operational Reporting Requirements*

Quarterly Mechanical Integrity Test Results

Annual Report

- ✓ Monitoring data (hydrology, vegetation, ...)

Revisions and Amendments

Spill Reporting

- ✓ Verbal w/i 24 hours
- ✓ Written w/i 5 days

Excursion Reporting

- ✓ Verbal w/i 24 hours
- ✓ Written w/i 5 days
- ✓ Control w/i 60 days

PRI - Highlands,  
Mechanical Integrity Testing,  
11/99, Quarterly Inspection.





# *Regular Mine Permit Requirements*

## *Restoration Packages*

- ✓ *Not very many submitted to date!* Schedule changes due to the price increase, better recovery %, & similar factors can be handled through revisions. Unexplained schedule delays, such as increased production at the expense of restoration efforts, may result in enforcement action.
- ✓ We've all learned something with each one.
- ✓ Protection of ground water for present & *future* use is key.
- ✓ Most issues from old wellfields can be avoided in the future with improved baseline and operating information, otherwise permitting new wellfields becomes problematic.

## *Bond Release Packages*

- ✓ None submitted yet for regular in situ mines.
- ✓ Facilities disposal (problematic?), revegetation success, ....



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